

Conservative surgery in early-stage cervical cancer: What percentage of patients may be eligible for conization and lymphadenectomy?

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ABSTRACT

Objective. To determine the proportion of young patients with early-stage invasive cervical cancer treated with radical hysterectomy who may have been eligible for fertility-sparing surgery consisting of cervical conization with pelvic lymph node dissection.

Methods. We retrospectively identified all patients with early-stage cervical cancer (stages IA1–IB1) who underwent a radical hysterectomy at The University of Texas M. D. Anderson Cancer Center between 1990 and 2009. We reviewed these patients' records to identify patients who were <40 years who had not previously undergone tubal ligation and who would have been considered candidates for cold-knife conization with pelvic lymph node dissection—i.e., women with tumors smaller than 2 cm, low-risk histology (squamous, adenocarcinoma, or adenosquamous), and no lymphovascular space invasion (LVSI).

Results. A total of 507 patients with early-stage cervical cancer were identified who underwent radical hysterectomy during the review period. Of these women, 277 (55%) were 40 years or younger. Of these 277 patients, 75 (27%) had had a previous tubal ligation and 202 (73%) had not. Of these 202 patients potentially interested in fertility preserving surgery, 53 (26%) had favorable pathologic characteristics including low-risk histology, tumors ≤2 cm in size and no LVSI present. Of these 53 patients, none had parametrial involvement or positive lymph nodes.

Conclusion. Among 202 women with age younger than 40 years and no previous tubal ligation who underwent radical hysterectomy, 53 (26%) may have been eligible for fertility-sparing surgery such as cold-knife conization with pelvic lymph node dissection.

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Introduction

It is estimated that women under the age of 45 years old account for 22% of the new cases diagnosed each year [1]. Statistics from the U.S. Census Bureau indicate that 28 in 1000 U.S. women will give birth to their first child between the ages of 30 and 34 years and 10 in 1000 will give birth to their first child between the ages of 35 and 39 years [2]. The relatively young age at which cervical cancer is often diagnosed, coupled with the postponement of childbearing, poses new challenges in the management of this disease.

The standard surgical management for early-stage cervical carcinoma, stages IA2 and IB1, is radical hysterectomy and bilateral pelvic lymph node dissection. In 1994, Dargent reported a fertility-

sparing surgical approach for young patients with cervical cancer known as a radical trachelectomy [3]. Since that initial report, a number of other institutions have published their experiences with the vaginal, the abdominal, and more recently, the robotic approach to radical trachelectomy [4–8].

Radical trachelectomy performed through any of the techniques described is a complex procedure with varying impact on future fertility. A review of the literature revealed a 41–79% success pregnancy rate in patients who attempted conception after radical trachelectomy [9]. Among the pregnancies that occurred, 18% ended in a miscarriage, and 38% resulted in preterm delivery (<37 weeks). Another study noted a 20% risk of preterm labor, with approximately 21% of pregnancies ending in miscarriage in the first trimester and 8% ending in miscarriage in the second trimester [10].

The morbidity associated with abdominal or vaginal radical trachelectomy is not insignificant. Complications are seen in about 10–15% of cases of abdominal or vaginal radical trachelectomy with laparoscopic lymphadenectomy. These complications have included bladder or bowel trauma, pelvic hematoma, pelvic abscess, and transient neuropathy requiring long-term catheterization [11]. Postoperative

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complications may also occur and have included dysmenorrhea, dysplastic Pap smears, irregular or intermenstrual bleeding, excessive vaginal discharge, isthmic stenosis, and amenorrhea [12].

Based on these observations, a number of investigators have studied the potential to preserve fertility with less radical surgery in highly selected low-risk patients. An early study by Kinney et al. [13] evaluated 83 patients with stage IB1 squamous cell carcinoma of the cervix, with tumor size <2 cm and no lymphovascular space involvement (LVSI). None of the patients in that study were found to have parametrial involvement. A subsequent report by Covens et al. [14] evaluated 842 patients with stage IA1 to IB1 cervical cancer who underwent radical hysterectomy. They noted that 33 patients (4%) had parametrial involvement. Parametrial involvement was associated with larger tumor size, LVSI, greater depth of invasion and positive pelvic lymph nodes. They performed a subset analysis of 536 patients with tumor size ≤2 cm, negative lymph nodes and <10 mm of cervical stromal invasion. In this subgroup of patients, the incidence of parametrial involvement was only 0.6%.

In 2004, Sonoda et al. [15] evaluated the percentage of patients with early-stage cervical cancer who underwent radical hysterectomy and who may have been eligible for laparoscopic radical vaginal trachelectomy. The authors found that approximately 48% of patients younger than 40 years of age with operable stage I cervical cancer would have been eligible for fertility-sparing surgery. Our goal was to define a subset of highly select patients who could undergo an even less radical surgery than a radical trachelectomy in the management of their early-stage cervical cancer. The objective of this study was to determine the percentage of young patients with early-stage invasive cervical cancer who were treated with radical hysterectomy who may have been eligible for a more conservative procedure such as cold-knife conization with pelvic lymph node dissection to maintain their fertility while avoiding the potential complications associated with a radical trachelectomy.

Methods

This study was approved by the Institutional Review Board of The University of Texas M.D. Anderson Cancer Center. A retrospective

review was performed of all patients with early-stage cervical cancer (stage IA1 with lymphovascular space invasion (LVSI), stage IA2, and stage IB1) who underwent a radical hysterectomy at M. D. Anderson Cancer Center between 1990 and 2009. All medical records were reviewed for patient's age, International Federation of Gynecology and Obstetrics stage, surgical history, tumor histology, tumor size, and evidence of LVSI. We identified patients younger than 40 years who did not have a history of tubal ligation who would have been considered candidates for conservative surgery consisting of cold-knife conization with pelvic lymph node dissection—i.e., women with a confirmed diagnosis of primary cervical cancer, a cervical tumor smaller than 2 cm, low-risk histology (squamous, adenocarcinoma, or adenosquamous), and no LVSI present on preoperative histology. All pathology specimens were reviewed and diagnoses were confirmed at M. D. Anderson Cancer Center by a gynecologic pathologist. Patients were excluded if information needed for data analysis was missing.

Because this was a retrospective study, information on desire to preserve fertility was not accessible from the patients' medical records. Therefore, an age of 40 years or younger and no previous tubal ligation was used as surrogates for potential desire for future fertility. Also, since routine fertility evaluation is not performed in patients who are scheduled to undergo a radical hysterectomy, it was not possible to objectively evaluate fertility potential in this retrospective study.

Results

We identified 507 patients who underwent a radical hysterectomy at M. D. Anderson Cancer Center during the study period. Of these women, 277 (55%) were 40 years or younger. Of these 277 patients, 75 (27%) had a previous tubal ligation, while 202 (73%) did not. Of these 202 patients, 12 had high-risk histology (6 neuroendocrine, 3 clear cell, 1 small cell, 1 lymphoepithelioid carcinoma, 1 sarcoma), and 190 (94%) had low-risk histology (113 squamous carcinoma, 57 adenocarcinoma, and 20 adenosquamous carcinoma). Of these 190 women, 71 had tumors larger than 2 cm (stage IB1 in 65, IB2 in 3, IIA in 2, and IIB in 1), and 119 had tumors 2 cm or smaller. Interestingly, of these 119 patients, 57 (48%) were either nulliparous or had had just one child prior to radical hysterectomy. Of these 119 patients, 53 did not have LVSI. Therefore,

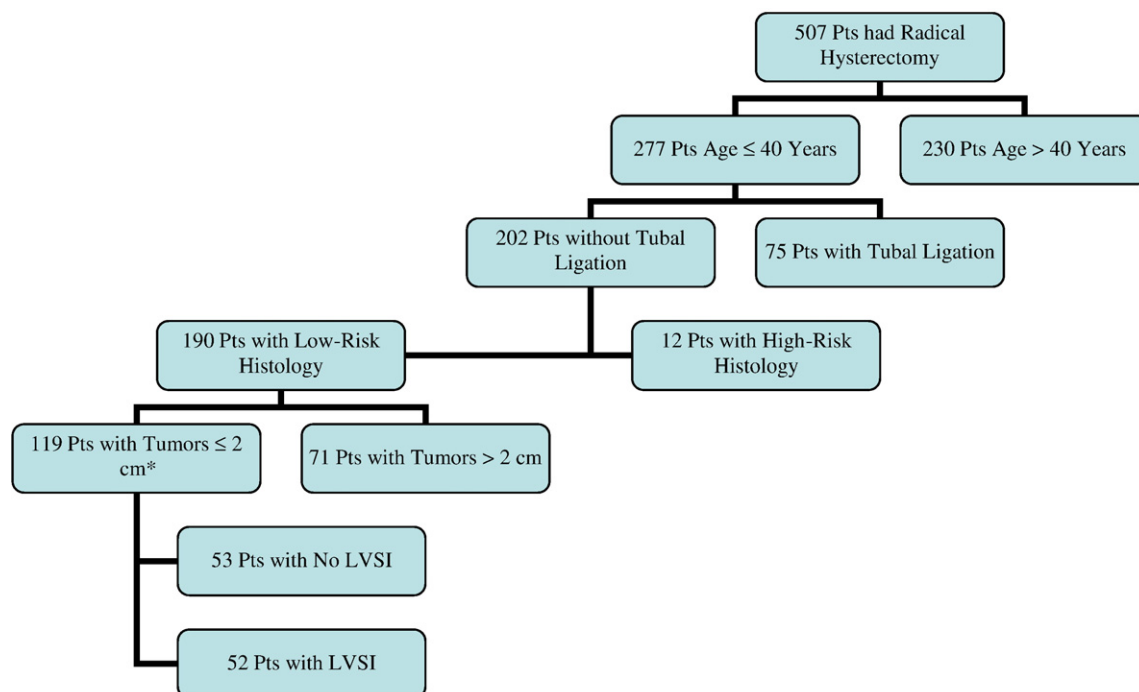


Fig. 1. Schema of eligible patients for simple conization and pelvic lymphadenectomy.

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